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10/089,470	03/20/2002	David Robert Diggins	025265-227	9637

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CHAN, SING P	
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1734	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/089,470	DIGGINS ET AL.	
	Examiner	Art Unit	
	Sing P. Chan	1734	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 February 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *41-57,83-94 and 97-106* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *41-57,83-94 and 97-106* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 104 and 105 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sandvig et al (EP 0,102,847) in view of Nestell et al (U.S. 6,000,814).

Sandvig et al discloses a method of coating ophthalmic device. The method includes providing an abrasion-resistant coating material and applying the coating material to a mold surfaces by spraying, dipping, brushing, flow coating, and spin coating (Page 5, lines 26-30), reacting the coating such as by heating to form a dry film (Page 6, lines 15-20) to a partial reaction (Page 7, lines 6-10), after the desired level of reaction is obtained, the mold is assembled and filled with liquid organic material to provide the substrate (Page 7, lines 31-35), and the abrasion-resistant coating includes vinyl silanes and siloxanes or polysiloxanes (Page 9, lines 28-37) and the organic material includes acrylate monomers, acrylate oligomers, and polymethylmethacrylate (Page 7, line 35 to Page 8, line 5). Sandvig et al is silent as to the method includes providing an intermediate or second coating between the abrasion-resistant coating or first coating and the organic material. However, providing an intermediate or a second coating between the first coating or the abrasion-resistant coating and the organic material is well known and conventional as shown for example by Nestell et al. Nestell

et al discloses a method of forming lens assembly with a hard coating. The method includes applying a protective or abrasion-resistant coating and any intermediate primer or second coating in a in-mold application technique to the same mold and then adding the lens material to the mold (Col 7, line 55 to Col 8, line 28).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide an intermediate or second coating between the abrasion-resistant or first coating and the lens material as disclosed by Nestell et al in the method of Sandvig et al to provide or promote the adhesion of the abrasion-resistant or first coating to the lens material. (See Nestell et al, Col 9, lines 54-61)

3. Claim 106 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sandvig et al (EP 0,102,847) in view of Nestell et al (U.S. 6,000,814) as applied to claim 104 above, and further in view of Konishi et al (U.S. 5,462,806).

Sandvig et al as modified above discloses the first and second coating can be applied using either an in-mold technique to form pre-formed and pre-coated lens or forming a pre-formed and uncoated lens and subsequently coating the lens with the coating layers (See Nestell et al, Col 7, line 55 to Col 8, line 12) but is silent as to second or primer coating includes a (meth)acryl silane. However, providing the second or intermediate coating of (meth)acryl silane is well known and conventional as shown for example by Konishi et al. Konishi et al discloses a method of forming a plastic lens. The method includes providing a second or primer coating between a hard or abrasion-resistant coating and the lens material (Col 1, lines 52-59), wherein the primer coating

includes methacryl group (Col 4, lines 32-33) such as metharcyloxypropylmethyldiethoxysilane. (Col 5, lines 43-44)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide methacryl group with silane in the primer coating as disclosed by Konishi et al in the method of Sandvig et al as modified by Nestell et al to provide a lens with excellent scratch resistant and impact resistance. (See Konishi et al, Col 1, lines 44-48)

4. Claims 41-57, 83-85, 88-94, 97, 98, 102, and 103 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sandvig et al (EP 0,102,847) in view of Nestell et al (U.S. 6,000,814) and Konishi et al (U.S. 5,462,806).

Regarding claims 41 and 103, Sandvig et al discloses a method of coating ophthalmic device. The method includes providing an abrasion-resistant coating material and applying the coating material to a mold surfaces by spraying, dipping, brushing, flow coating, and spin coating (Page 5, lines 26-30), reacting the coating such as by heating to form a dry film (Page 6, lines 15-20) to a partial reaction (Page 7, lines 6-10), after the desired level of reaction is obtained, the mold is assembled and filled with liquid organic material to provide the substrate (Page 7, lines 31-35), and the abrasion-resistant coating includes vinyl silanes and siloxanes or polysiloxanes (Page 9, lines 28-37) and the organic material includes acrylate monomers, acrylate oligomers, and polymethylmethacrylate (Page 7, line 35 to Page 8, line 5). Sandvig et al is silent as to the method includes providing an intermediate or second coating between the abrasion-resistant coating or first coating and the organic material and the second

includes (meth)acryl silane. However, providing an intermediate or a second coating between the first coating or the abrasion-resistant coating and the organic material is well known and conventional as shown for example by Nestell et al. Nestell et al discloses a method of forming a lens assembly with a hard coating. The method includes applying a protective or abrasion-resistant coating and any intermediate primer or second coating in a in-mold application technique to the same mold and then adding the lens material to the mold (Col 7, line 55 to Col 8, line 28).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide an intermediate or second coating between the abrasion-resistant or first coating and the lens material as disclosed by Nestell et al in the method of Sandvig et al to provide or promote the adhesion of the abrasion-resistant or first coating to the lens material. (See Nestell et al, Col 9, lines 54-61) Sandvig et al as modified by Nestell et al discloses the first and second coating can be applied using either an in-mold technique to form pre-formed and pre-coated lens or forming a pre-formed and uncoated lens and subsequently coating the lens with the coating layers (See Nestell et al, Col 7, line 55 to Col 8, line 12) but is silent as to second or primer coating includes a (meth)acryl silane. However, providing the second or intermediate coating of (meth)acryl silane is well known and conventional as shown for example by Konishi et al. Konishi et al discloses a method of forming a plastic lens. The method includes providing a second or primer coating between a hard or abrasion-resistant coating and the lens material (Col 1, lines 52-59), wherein the primer coating includes

methacryl group (Col 4, lines 32-33) such as metharcyloxypropylmethyldiethoxysilane. (Col 5, lines 43-44)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide methacryl group with silane in the primer coating as disclosed by Konishi et al in the method of Sandvig et al as modified by Nestell et al to provide a lens with excellent scratch resistant and impact resistance. (See Konishi et al, Col 1, lines 44-48)

Regarding claim 42, Sandvig et al discloses the coating replicate the mold surface (Page 5, lines 15-18), which required the coating to completely cover in order to replicate mold surface.

Regarding claim 43, Sandvig et al discloses the coating is reacted to a degree to form a dry film, which replicates the mold face in an aberration-free manner. (Page 6, lines 15-17)

Regarding claim 44, Sandvig et al discloses the coating is partially reacted within certain limits. (Page 6, lines 20-22)

Regarding claim 45, Sandvig et al discloses the coating is partially reacted by exposing it to a temperature in the range of about 35°C to 100°C for from about one to ten minutes. (Page 6, lines 26-29)

Regarding claims 46 and 47, Sandvig et al discloses the coating is reacted to a degree of unsaturation of from about 30% to 90% or preferably from about 55% to about 70%. (Page 6, lines 31-37)

Regarding claims 48 and 49, Sandvig et al discloses both thermal initiators and radiation initiators. (Page 15, line 28 to Page 16, line 24)

Regarding claims 50, 54, and 88, Sandvig et al is silent as to the method includes providing an intermediate or second coating between the abrasion-resistant coating or first coating and the organic material and the second includes (meth)acryl silane. However, providing an intermediate or a second coating between the first coating or the abrasion-resistant coating and the organic material is well known and conventional as shown for example by Nestell et al. Nestell et al discloses a method of forming lens assembly with a hard coating. The method includes applying a protective or abrasion-resistant coating and any intermediate primer or second coating in a in-mold application technique to the same mold and then adding the lens material to the mold (Col 7, line 55 to Col 8, line 28), which would co-react all the layers or coatings.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide an intermediate or second coating between the abrasion-resistant or first coating and the lens material as disclosed by Nestell et al in the method of Sandvig et al to provide or promote the adhesion of the abrasion-resistant or first coating to the lens material. (See Nestell et al, Col 9, lines 54-61)

Regarding claim 51, Sandvig et al discloses the first coating includes methacryloxypropyltrimethoxy silane. (Page 15, lines 6-16)

Regarding claim 52, Sandvig et al discloses using free radical initiators. (Page 16, lines 1-5)

Regarding claims 53, 55, and 56, Sandvig et al discloses reacting the coating by heat curing (Page 6, lines 15-25), which form a dry film, i.e. remove the solvent with thermal energy, and further post curing the lens and coating after hardening of the lens material to sufficient to assure essentially complete the reaction of the coating, which no additional reaction will occurs. (Page 8, line 33 to Page 9, line 5)

Regarding claim 57, Sandvig et al discloses post curing using same techniques to cure the coating, i.e. heating at 35°C to 85°C for up to 16 hours (Page 8, line 6-10 and Page 8, lines 33 to Page 9, line 5)

Regarding claims 83-85, Sandvig et al as modified above is silent as to the lens is subjected to additional treatment such as applying anti-reflection stack layers. However, providing anti-reflection layers to a pre-formed lens is well known and conventional as shown for example by Konsihi et al. Konsihi et al discloses a method forming plastic lens. The method includes providing anti-reflection film on the surface of the hard or first coating after the coating is formed on the lens. (Col 7, line 51 to Col 8, line 4)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide anti-reflection film on the hard or first coating after the coating has been applied to the lens as disclosed by Konsihi et al in the method of Sandvig et al as modified by Nestell et al to provide a lens with excellent in scratch resistance and impact resistance. (See Konsihi et al, Col 1, lines 44-48)

Regarding claims 89-91, Sandvig et al as modified above is silent as to the primer coating includes (meth)acryl silane in the range from 30% to 100% or 50% to

90% and the (meth)acryl silane is methacryloxypropyltrimethoxysilane. However, providing (meth)acryl silane in the range from 10% to 80% and the (meth)acryl silane is methacryloxypropyltrimethoxysilane is well known and conventional shown for example by Konsihi et al. Konsihi et al discloses a method of forming plastic lens. The method includes providing a primer layer or intermediate coating with 10% to 80% of a resin with methacryloxypropylmethoxysilane. (Col 2, lines 48-56 and Col 5, lines 43-44)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide methacryloxypropyltrimethoxysilane in the range from 10% to 80% as disclosed by Konsihi et al in the method of Sandvig et al as modified by Nestell et al to provide a lens with excellent in scratch resistance and impact resistance. (See Konsihi et al, Col 1, lines 44-48)

Regarding claim 92, Sandvig et al discloses the organic material includes acrylate monomers. (Page 8, lines 1-5)

Regarding claims 93 and 94, Sandvig et al discloses the first coating has a thickness 0.5 to 50 μm thick. (Page 5, lines 7-10)

Regarding claims 97 and 98, Sandvig et al as modified above is silent as to the thickness of the primer coating. However, providing a primer coating of thickness of 0.05 μm to 5 μm is well known and conventional as shown for example by Konsihi et al. Konsihi et al discloses a method of forming a plastic lens. The method includes providing a primer coating between the hard or abrasion-resistant coating and the lens material (Col 1, lines 52-58) with a thickness of 0.05 μm to 5 μm (Col 3, lines 34-42)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a primer coating with a thickness of 0.05 μm to 5 μm as disclosed by Konsihi et al in the method of Sandvig et al as modified by Nestell et al to provide a lens with excellent in scratch resistance and impact resistance. (See Konsihi et al, Col 1, lines 44-48)

Regarding claim 102, Sandvig et al as modified above is silent as to the abrasive-resistant or the primer coating includes particulate fillers with an average diameter range from 10 nm to 80 nm diameter. However, providing particulate fillers with average diameter range from 10 nm to 80 nm diameters is well known and conventional as shown for example by Konsihi et al. Konsihi et al discloses the hard or the abrasive-resistant coating or the primer coating includes fine particle of inorganic material such as silicon dioxide, aluminum trioxide, titanium dioxide, zirconium dioxide, tin dioxide, antimony trioxide with an average diameter of 1 to 300 nm or 5 to 200 nm (Col 5, lines 50-68), which would be inert and would also modify the refractive index of the coatings (Col 5, lines 50-54).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide particulate fillers with an average diameter range from 1 nm to 300 nm diameter in the abrasive-resistant or the primer coating as disclosed by Konsihi et al in the method of Sandvig et al as modified by Nestell et al to provide improved surface hardness. (See Konsihi et al, Col 5, lines 52-54)

5. Claims 86 and 87 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sandvig et al (EP 0,102,847) in view of Nestell et al (U.S. 6,000,814) and Konishi

et al (U.S. 5,462,806) as applied to claim 41above, and further in view of Singh et al (U. S. 5,204,126).

Sandvig et al as modified above is silent as to the mold surface includes mold release agent in the form of a silane or fluorochemical treatment. However, providing mold with release agent by treating the surface with silane or fluorochemical is well known and conventional as shown for example by Singh et al. Singh et al discloses a method of forming ultra thin release films on the mold surfaces. The method includes forming a film with fluorinated alkyl group or silane or siloxane onto the surface of the mold surface (Col 4, lines 48-59) and the film has a thickness of not more than 0.5 μm or not more than 10 nm. (Col 7, lines 23-30)

It would have been obvious to one of ordinary skill in the at the time the invention was made provide very thin silane or fluorochemcial film as a release agent to the mold surface as disclosed by Singh et al in the method of Sandvig et al as modified by combination of references to allow the casting of the optical lenses to be easily released from the surface of the mold without damaging the lens. (See Singh et al, Col 1, lines 50-55)

6. Claims 99-101 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sandvig et al (EP 0,102,847) in view of Nestell et al (U.S. 6,000,814) and Konishi et al (U.S. 5,462,806) as applied to claim 41above, and further in view of Takamizawa et al (U.S. 5,096,626).

Sandvig et al as modified above is silent as to the anti-reflection layers includes a stack of layers with a cumulative thickness range from 0.5 μm to 20 μm or 1.5 μm to 5

μm with alternate high and low refractive index layers. However, providing anti-reflection layers as multi-layers with a cumulative thickness ranged from 0.5 μm to 20 μm or 1.5 μm to 5 μm with alternate high and low refractive index layers on the first and second coating layers is well known and conventional as shown for example by Takamizawa et al. Takamizawa et al discloses forming anti-reflecting film as multi-layers having different indices of refraction varied in the direction of the thickness film and the thickness of the film can be adjusted by selection of a solvent or a coating method, which is considered to be any desired thickness and includes 0.5 μm to 20 μm or 1.5 μm to 5 μm. (Col 6, lines 23-37)

It would have been obvious to one of ordinary skill in the at the time the invention was made to provide anti-reflecting film as multi-layers having different indices of refraction varied in the direction of the thickness of the film and the thickness of the film can be adjusted by selection of the a solvent or a coating method, which is considered to be any desired thickness and includes 0.5 μm to 20 μm or 1.5 μm to 5 μm as disclosed by Takamizawa et al in the method of Sandvig et al as modified by the combination of references to provide hard coat film and anti-reflecting film with excellent adhesion between the lens and film with no defects. (See Takamizawa et al, Col 2, lines 5-13)

Response to Arguments

7. Applicant's arguments filed February 28, 2007 have been fully considered but they are not persuasive.

8. In response to applicant's argument of Sandvig et al does not teach providing a second coating and treating the second coating, the examiner disagrees, since the examiner provided Nestell et al to show it is well known and conventional to provide a primer layer between the lens and a protective or hard coating and the layers can be applied with an in-mold coating method, which is taught by Sandvig et al. Furthermore, One of ordinary skill in the art reading Sandvig et al and Nestell et al would appreciate any additional layer applying by in-mold coating would require the step of coating the mold with material and partially curing the material to form a film prior to filling the mould with an organic liquid material such as polycarbonate. Both Sandvig et al and Nestell et al disclose the organic material includes polycarbonate. (See Sanvig et al, Page 7, line 31 to Page 8, line 5 and See Nestell et al, Col 2, lines 49-51)

9. In response to applicant's argument of Nestell et al does not suggest co-reacting with the lens material and the protecting coating, the examiner disagrees, since the function of a primer layer is to provide better adhesion between layers for the lens layers (See Nestell et al, Col 9, lines 54-61), which would require interaction between the materials sandwiching the primer layer. Furthermore, both Sandvig et al and Nestell et al discloses the lens organic material includes polycarbonate (See Sandvig et al, Page 8, line 4 and See Nestell et al, Col 2, lines 49-51), therefore, the combination of Sandvig et al and Nestell et al is proper.

10. In response to applicant's argument that Nestell et al is nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant

was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, Nestell et al is in the field of applicant's endeavor since Nestell et al discloses forming a lens assembly with a hard coating or protective coating to the lens.

11. In response to applicant's argument of Konishi et al discloses the primer layer comprises a polyurethane resin, the examiner agrees Konishi et al discloses the primer layer comprises a polyurethane resin but is not the only resin recited. Konishi et al also recites addition example such as silicone type resin, acrylic acid, and vinyl type resins (See Konishi et al, Col 2, lines 62-66).

12. In response to applicant's argument of Konishi et al is directed to a different technical field using a pre-form lens, the examiner agrees Konishi et al is directed to using a pre-form lens, but the examiner only relied on Konishi et al to provide the teaching of using silicone or silane for the primer layer between the hard coating and the lens material and furthermore, Nestell et al discloses the lens assembly can be formed with either pre-form lens or with molding the lens module with the primer coating being applied with in-mold coating process. (See Nestell et al, Col 7, line 50 to Col 8, line 29) Therefore, Konishi et al is in the field of applicant's endeavor. Furthermore, Konishi et al also recites the lens material includes polycarbonate (See Konishi et al, Col 6, lines 31-37).

Conclusion

13. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sing P. Chan whose telephone number is 571-272-1225. The examiner can normally be reached on Monday-Thursday 7:30AM-11:00AM and 12:00PM-4:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christopher A. Fiorilla can be reached on 571-272-1187. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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